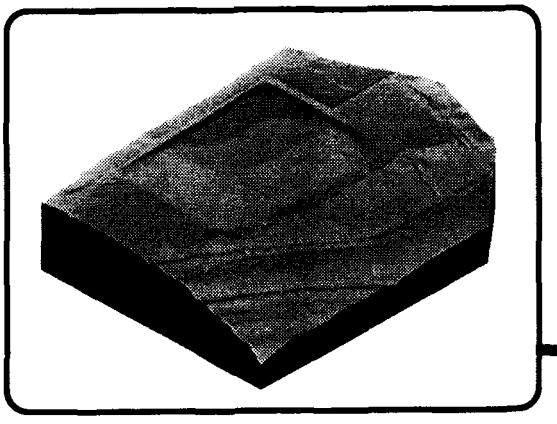

Cleaning up the Solar Ponds

An Overview of the OU4 IM/IRA-EA Decision Document

Operable Unit (OU)4 is one of 16 OUs at Rocky Flats, contaminated areas designated by the 1991 Interagency Agreement as candidates for remediation. The agreement, among the Department of Energy (DOE), the Environmental Protection Agency (EPA) and the Colorado Department of Public Health and the Environment (CDPHE), ranked these OUs by number, according to the estimated threat posed by each to human health and the environment.

OU4 Background

OU4 covers approximately 30-acres in the northeast corner of the industrial area of the site, and includes all five of the small, man-made lakes known as the Solar Evaporation Ponds. From the time when weapon component production began at Rocky Flats in the 1950's until the mid 1980's, some of the by-products of the manufacturing process became mixed with water. This so-called "process water"was piped to the Solar Ponds for treatment. There the water could be allowed to evaporate, and the suspended manufacturing residues, contaminated by nitrates, hazardous chemicals and radioactive material, would settle to the bottom of the ponds to form sludge. This sludge was periodically removed from the ponds, treated and shipped to Idaho for disposal. Some of the ponds were lined with material designed to keep contaminated water from seeping into the ground beneath. Regular maintenance and repair was performed on the pond liners. After 20-odd years and several cycles of sludge removal and liner repair, site officials had reason to suspect that contamination had been released into the environment under and around the ponds. In fact, in 1970, water samples taken from North Walnut Creek, the drainage located to the north of the ponds, showed evidence of nitrate contamination. To keep this contamination at bay, a series of trenches were dug to intercept groundwater before it reached the creek, and pumps were installed to move the collected water back into the ponds. Additionally, the pond liners were upgraded to decrease the possibility of seepage.These measures alleviated the contamination to the North Walnut Creek drainage, but the discovery of contamination outside the Solar Ponds hinted at a potentially larger problem: Where was the contamination coming from, and where might it migrate?

When production ceased at Rocky Flats in 1989, the Solar Ponds had already been idle for several years, but the detection of contamination in the environment around them gave high priority to the characterization of this contamination, the assessment of the risk it poses to human health and the environment, and the formulation of a plan to clean it up. The Interagency Agreement, as well as legal requirements under the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), mandated that DOE choose a course of action for the closure and remediation of OU4.

Birth of a Decision Document

So began a two-year project , under the joint auspices of the DOE, the CDPHE and the EPA, to gather and compile the data needed to make that choice. The end product of this effort, which carries the prodigious title of "Operable Unit 4 Interim Measure/Interim Remedial Action-Environmental Assessment Decision Document (OU4 IM/IRA-EA DD)," contains detailed studies of all OU4 cleanup issues. Among them:

- the contaminants present in and around the ponds,
- the contaminant concentration levels,
- the extent of contamination,
- the degree of health and environmental risk indicated by the contaminants, and
- the geology, ecology and climate of the pond area.

The study also included an evaluation of reasonable measures for remediation of OU4. Several applicable cleanup technologies and alternative approaches to remediation were investigated in detail. The alternatives ranged from "no action" to the removal and shipment offsite of every cubic foot of contaminated soil. Each technology and alternative was evaluated for the capability to provide the necessary risk reduction at a reasonable cost.

The study concludes with a conceptual design for the cleanup alternative that appears most promising. This solution, an engineered cover which would be built over the Solar Ponds, is cost effective and would meet risk mitigation requirements.

The engineered cover, also called a cap, is an accepted method for the closure of a "surface impoundment" like the Solar Ponds. The pond liners and treated sludges from the ponds would be consolidated under the cap, along with contaminated soils from the area surrounding the ponds. The design of the cap is based on research conducted at the DOE's Hanford facility and Los Alamos National Laboratory, and uses natural materials and processes appropriate for semi-arid regions such as the Front Range to provide the structure with a projected life span of a thousand years. The OU4 cap would consist of several layers, including one of impermeable asphalt, to prevent surface water from passing through to the contaminated material beneath. The cap's integrity would be monitored for at least 30 years, as would nearby surface and groundwater.. While the engineered cover does not provide a so-called "clean closure" of OU4, it does meet RCRA and CERCLA guidelines for a closure of this type. More significantly, the cover provides the contaminant isolation and constraint necessary to maintain an insignificant health risk, even for people living and working next door to the site. The projected risk factor is 10-6, or one additional case of cancer per 1,000,000 people. Finally, at an estimated cost of $99 million, the cover plan is the most cost-effective way to reach OU4 closure goals. By comparison, the cost of the alternative involving the removal and shipment of all contaminated material from the pond area is estimated at more than $916 million.

The Department of Energy would like your input on theOperable Unit 4 Interim Measure/ Interim Remedial Action Environmental Assessment Decision Document . To that end, copies of the Decision Document will be available for a 60-day public review beginning February 10, 1995 at the following locations:

Department of Energy Rocky Flats Public Reading Room
Front Range Community College
Library
3645 West 112th Avenue
Westminster, CO 80030

The U.S. Environmental Protection Agency - Region VIII
Superfund Records Center
999 - 18th Street - Suite 500
Denver, CO 80222-1530

Rocky Flats Citizens Advisory Board
9035 Wadsworth Parkway -
Suite 2250
Westminster, CO 80021

The Colorado Department of Public Health & Environment
4300 Cherry Creek Drive South,
Building A,
Denver, CO 80222-1530

Standley Lake Library
8485 Kipling
Arvada, CO 80005

Due to the document's size and complexity, a Reader's Guide will be provided to help interested readers find their way through it.

For additional information, or to comment on the Operable Unit 4 Interim Measure/Interim Remedial Action Environmental Assessment Decision Document, please contact Eileen Jemison, EG&G Rocky Flats Community Relations, at (303) 966-2302.